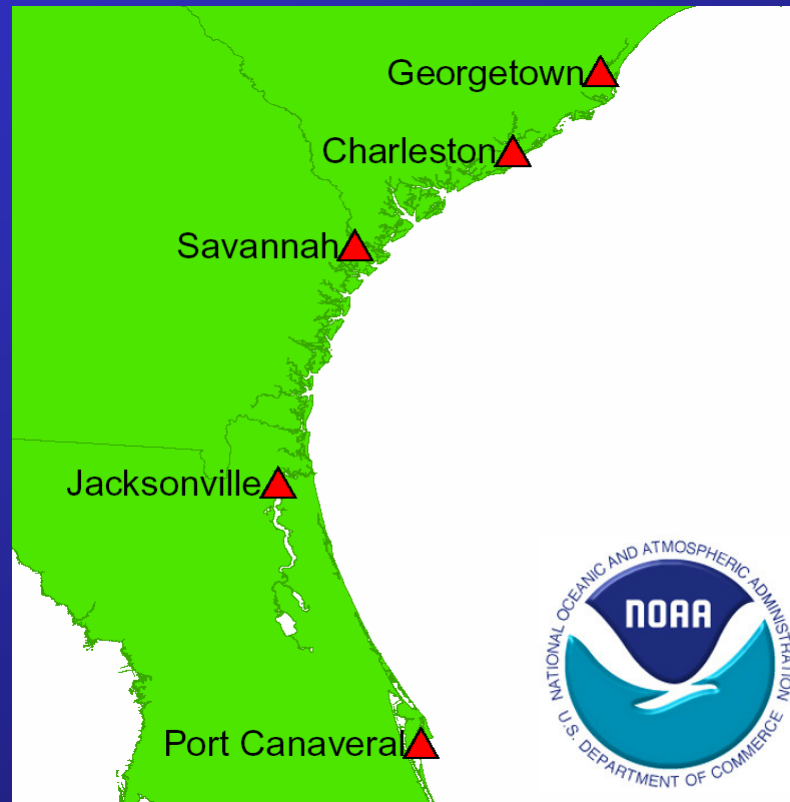


Brunswick/Fernandina/Jacksonville

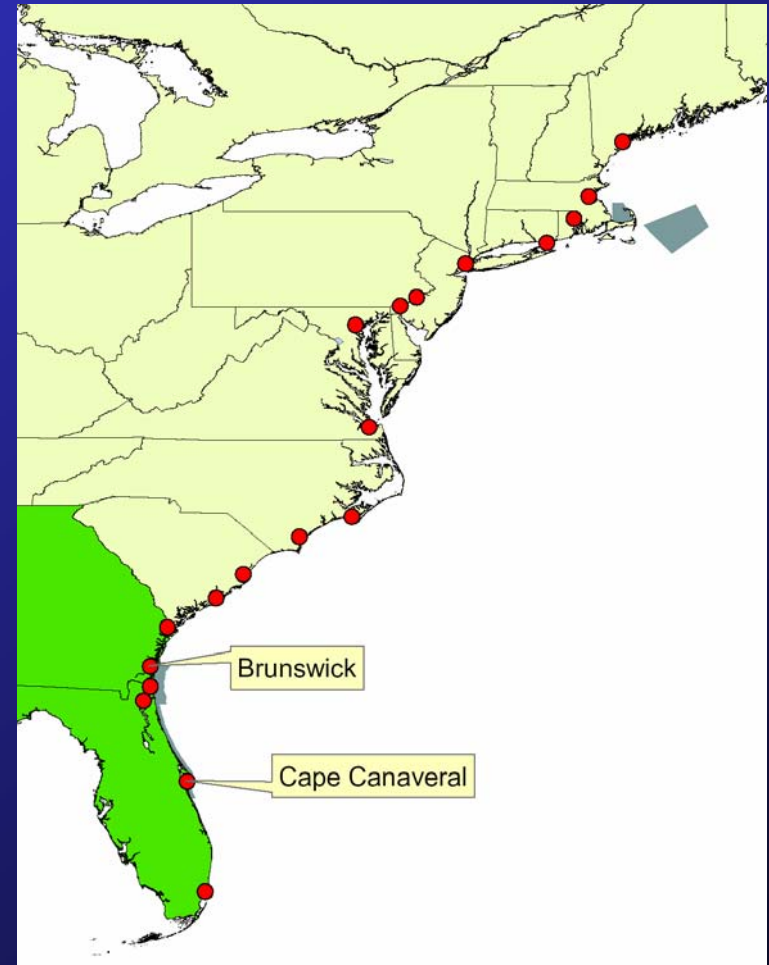
Right Whale Ship Strike Reduction Measures



Barb Zoodsma
NOAA Fisheries Southeast Region

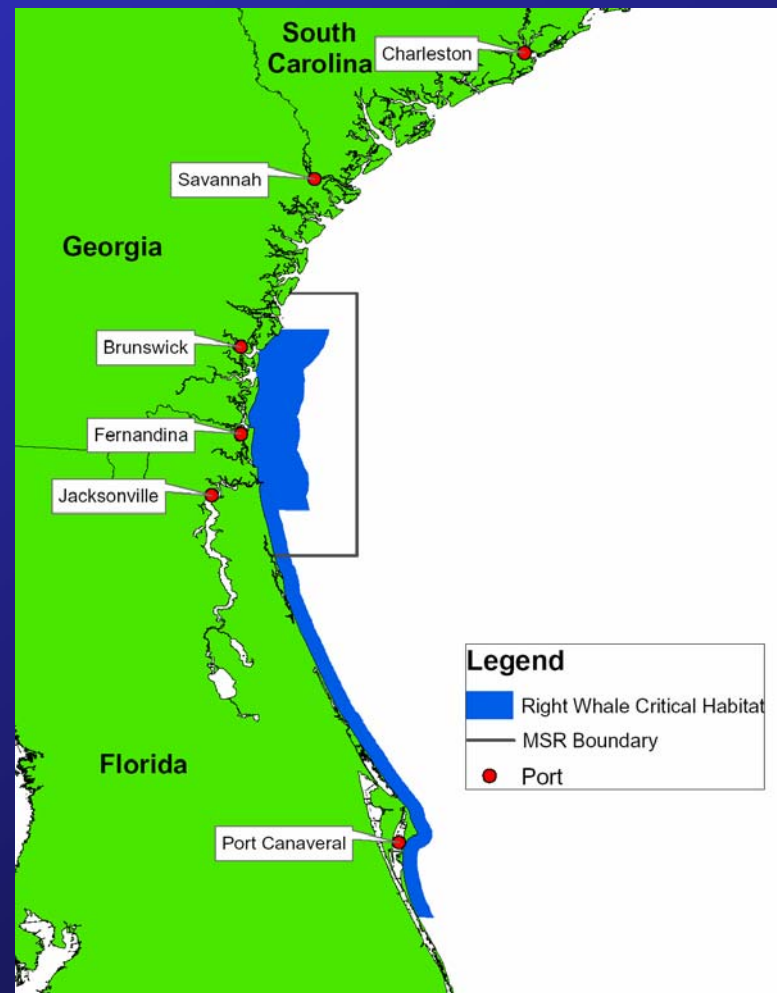
SEUS Region

- Area inclusive of just north of Brunswick, Georgia to Cape Canaveral, Florida
- Winter calving area



SEUS Region

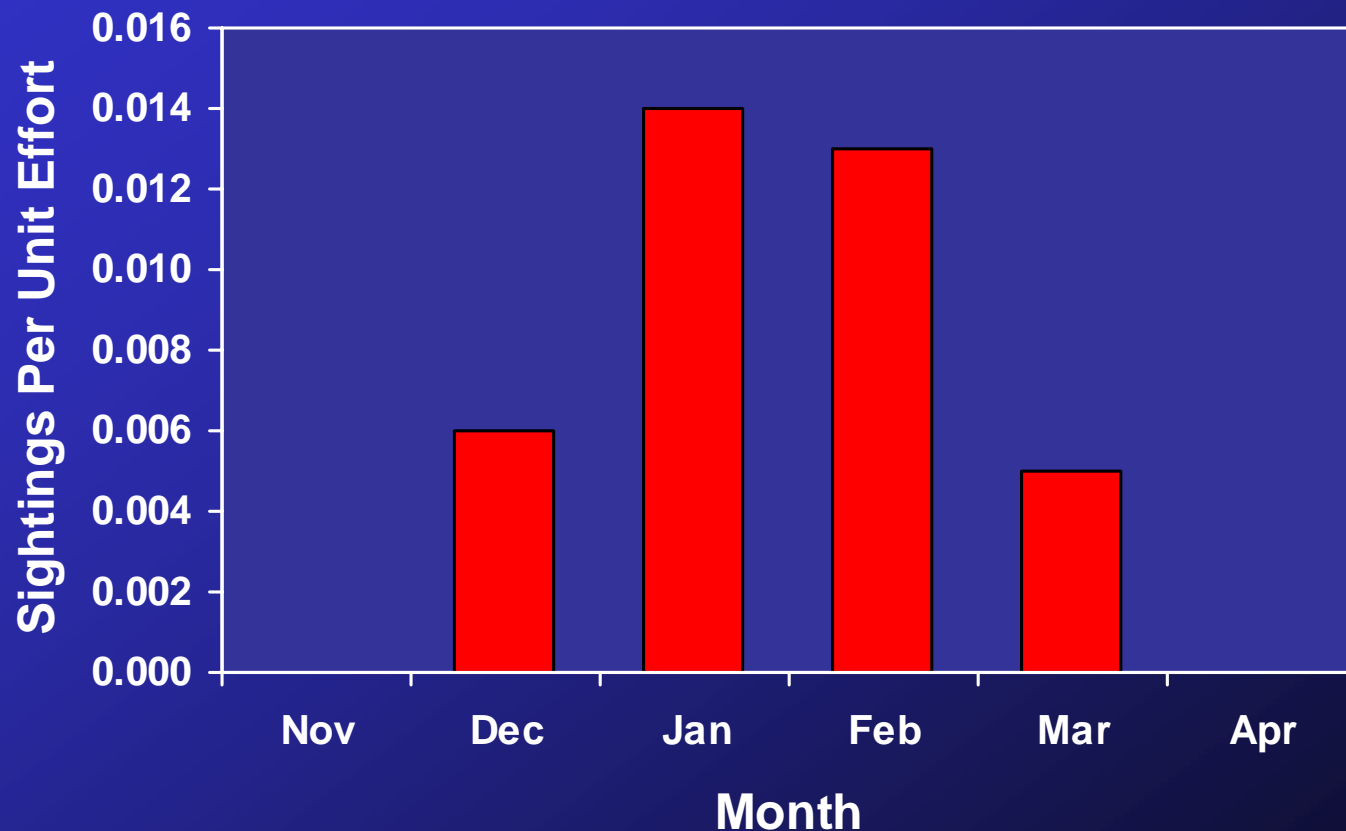
- Features:
 - Calving Area Critical Habitat
 - MSR Area:
WHALESSOUTH
 - Ports:
 - Brunswick, GA
 - Fernandina, FL
 - Jacksonville, FL
 - Cape Canaveral, FL



Seasonal Use of SE US Region

- Only known calving ground for North Atlantic Right Whales
- Seasonal use (Dec. – Mar)
 - Calving females
 - Other population segments
- High proportion of reproducing females in this area (most vital segment of right whale population)
- Protecting reproductive potential is essential for recovery of the species.

Temporal Distribution of SEUS Right Whale Sightings

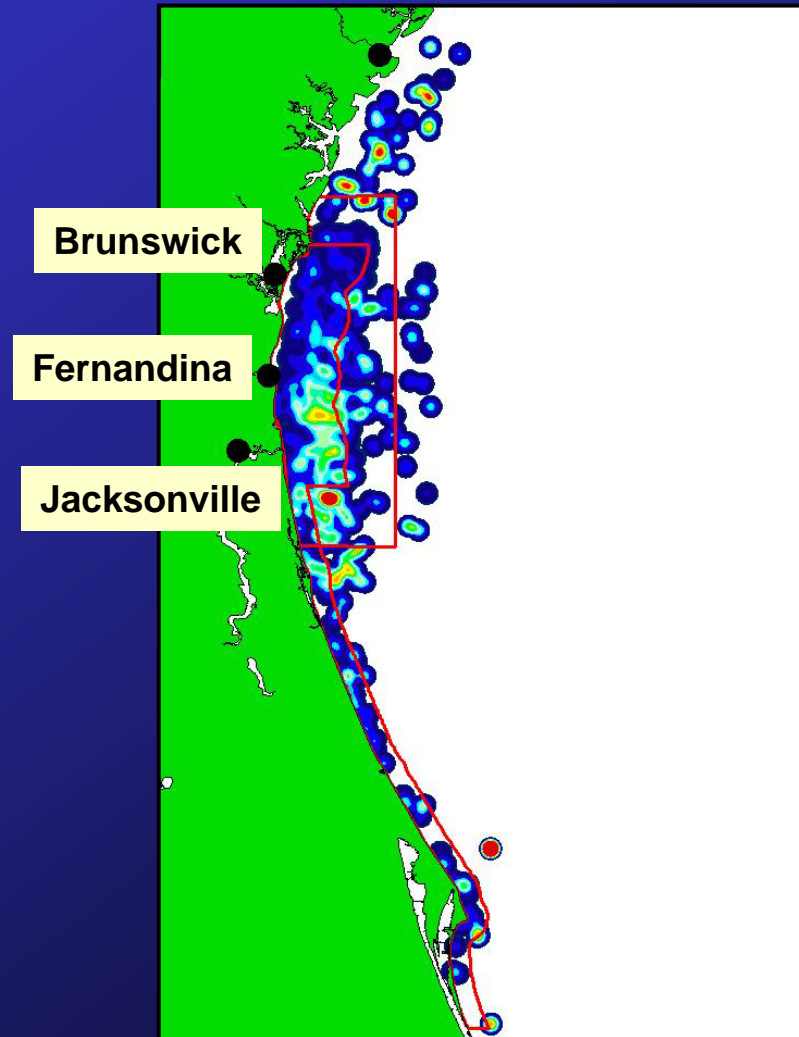


Source: NMFS Unpub. Data.

Sightings through 01/02 calving season and south of 31°30' latitude

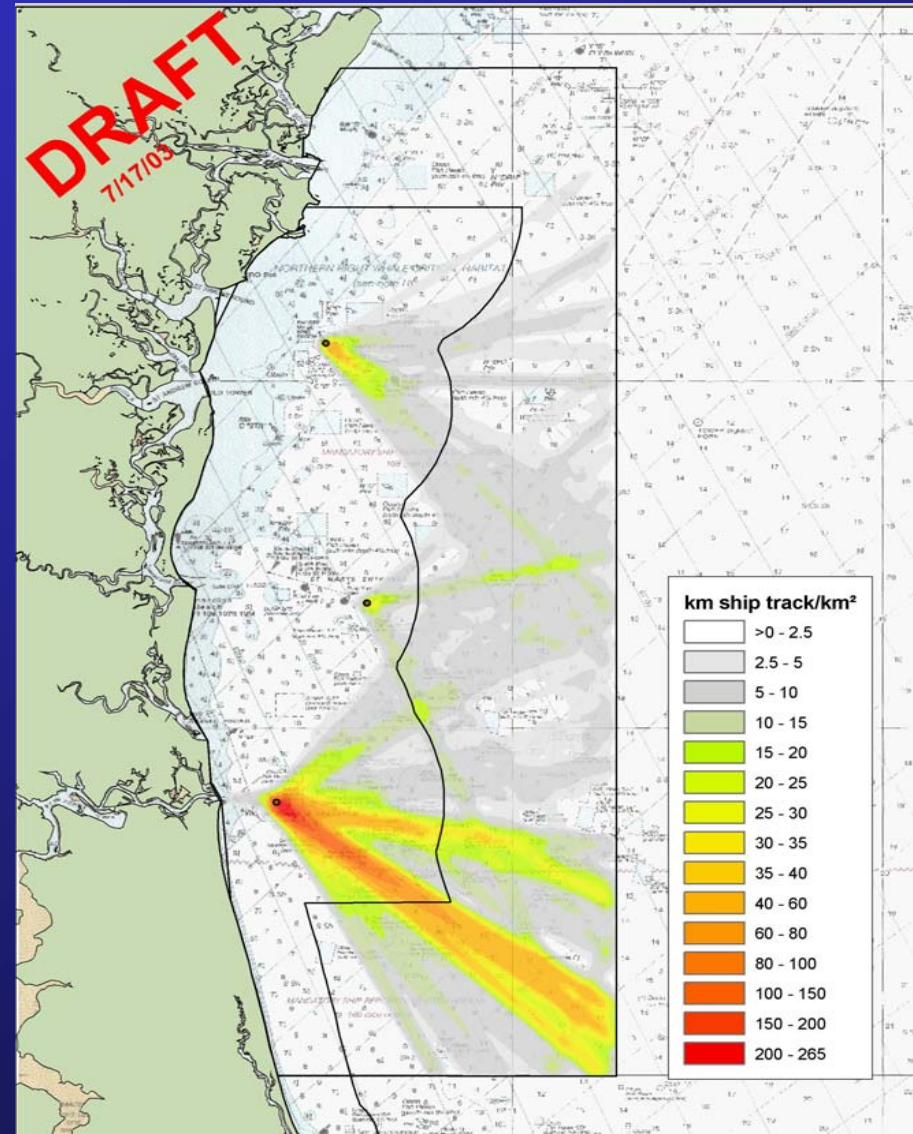
Spatial Distribution in SEUS

- Whales distributed fairly close to shore
- High use area from Brunswick to south of Jacksonville



MSR Ship Tracks

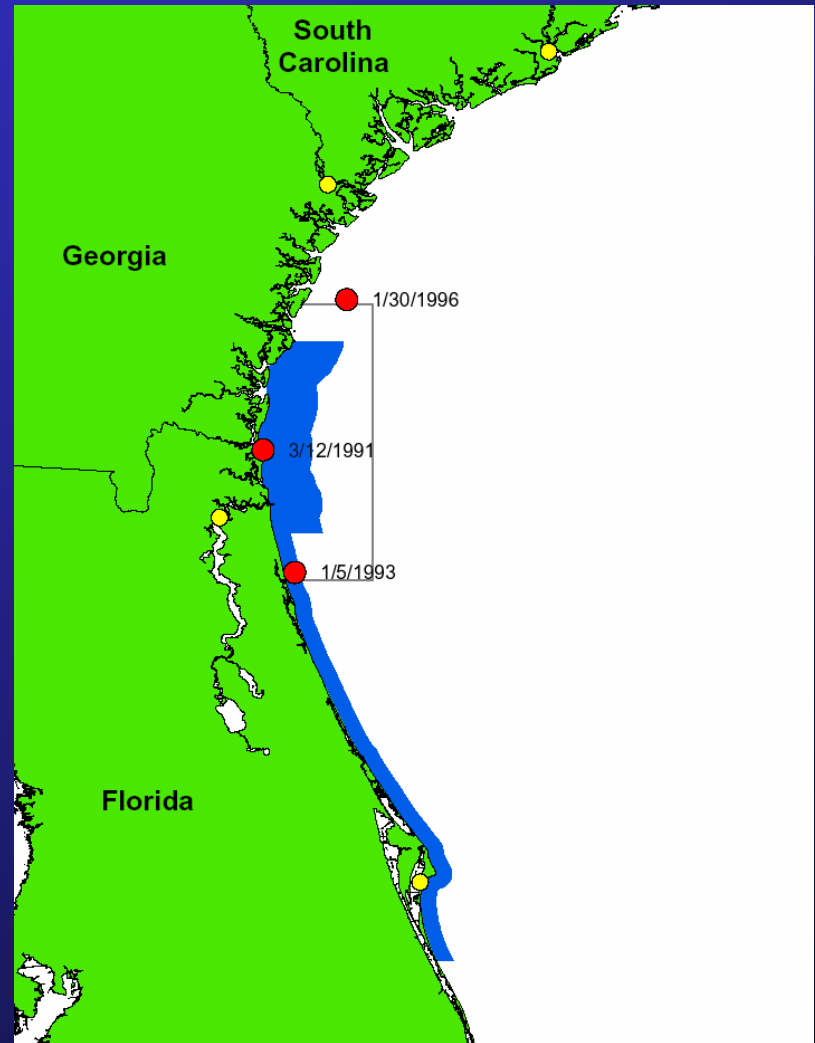
- Provides measure of traffic density through critical habitat
- No defined approaches to these ports
- Several “de facto” traffic lanes
- Highest use port is Jacksonville



SE US Ship Strike Mortalities

1991 - 2002

- 3 documented ship strike mortalities

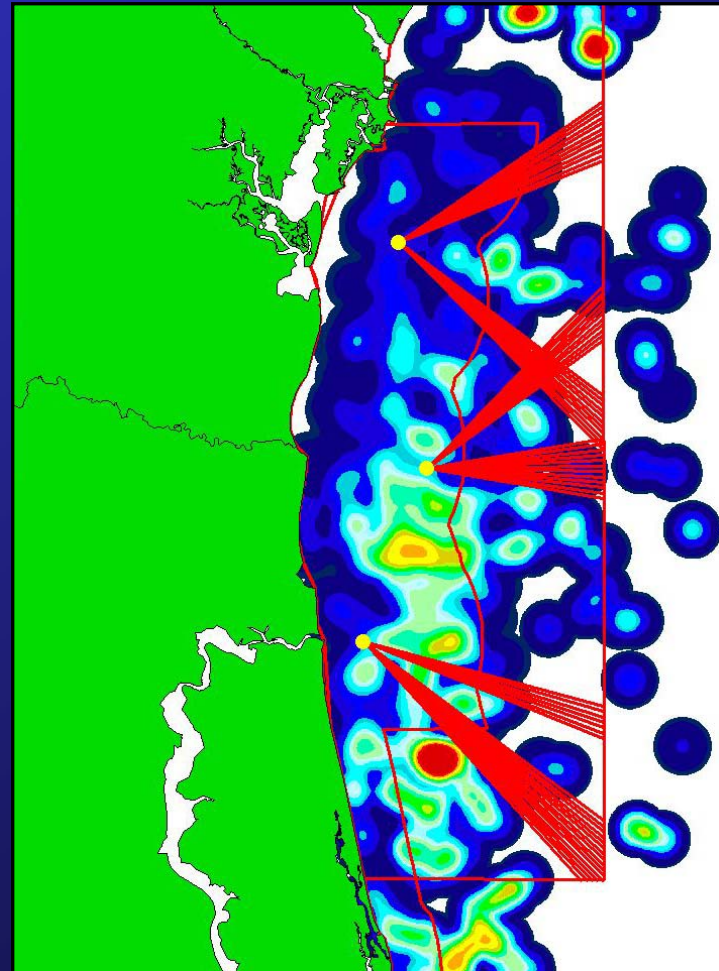


Proposed SEUS Operational Measures

- USCG Port Access Route Study (PARS) for Brunswick, Fernandina, and Jacksonville
 - Objective: full assessment of potential routing on:
 - Risk reduction to right whales
 - Navigational safety
 - Economics of affected ports

Proposed SEUS Operational Measures

- PARS ensures full hearing of any routing measure considered.
 - Allows for integration of views: maritime safety, port elasticity, and right whale protection



SE US Measures

- Seasonal Management Area
 - Time: December 1 - March 31*
 - If warranted by PARs: Establish designated routes to reduce risk of vessel/whale collisions
 - Seasonal speed restrictions (10-14 knots) in lanes

**Precise dates to be determined pending further data analysis*

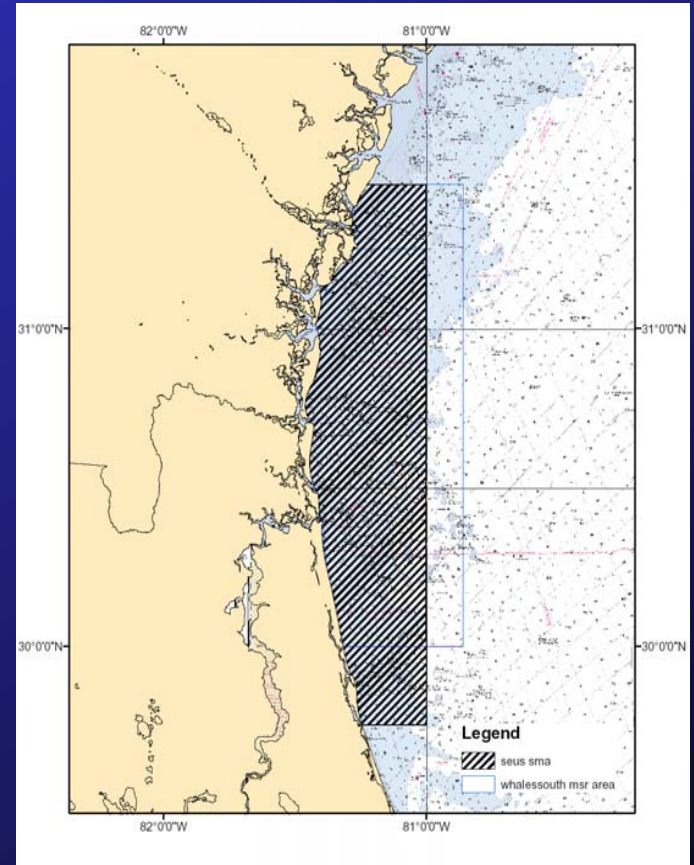
SE US Measures (cont.)

- Develop an Understanding with Coastal Traffic (lg. rec. vessels, tug/barge, etc.)
 - Use designated traffic lanes or avoid area the area to maximum extent practicable
 - Otherwise: Uniform speed restriction (10-14 knots)

SE US Seasonal Management Area*

- Northern Boundary: $31^{\circ}27'N$
 - Southern Boundary: $29^{\circ}45'N$
 - Eastern Boundary: $81^{\circ}00'W$
 - Western Boundary: Shoreline
-

- ~24 nmi East of Jax, Fern.
(jetties), and Bwk

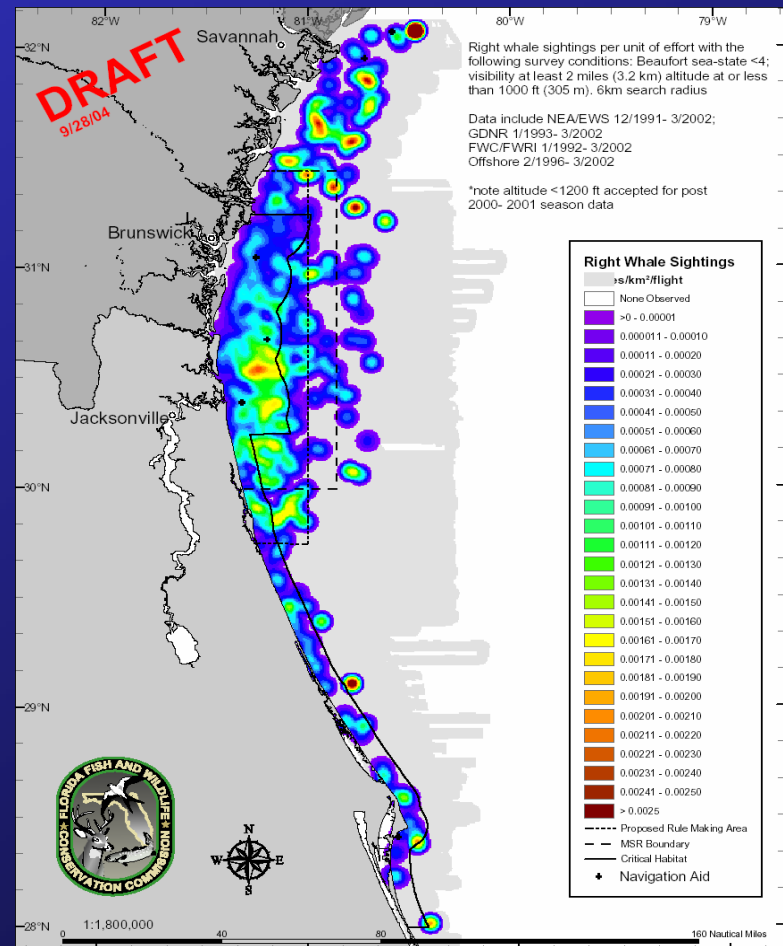


**Precise area pending further data analysis*

SE US

Seasonal Management Area

- Aerial survey data through 2002
- Effort corrected



Jacksonville Increased Transit Time

Pilot Buoy @ 4.2 nmi (5 knots)

	10 Knots			12 Knots		
	20 nmi	25 nmi	30 nmi	20 nmi	25 nmi	30 nmi
Dry Bulk Panamex	31	35	41	20	20	22
Container (~3000TEU)	50	62	77	39	47	57
Car Carrier	36	41	49	25	26	30
Tug/Barge	21	20	22	0	0	0

Russell et al., 2003

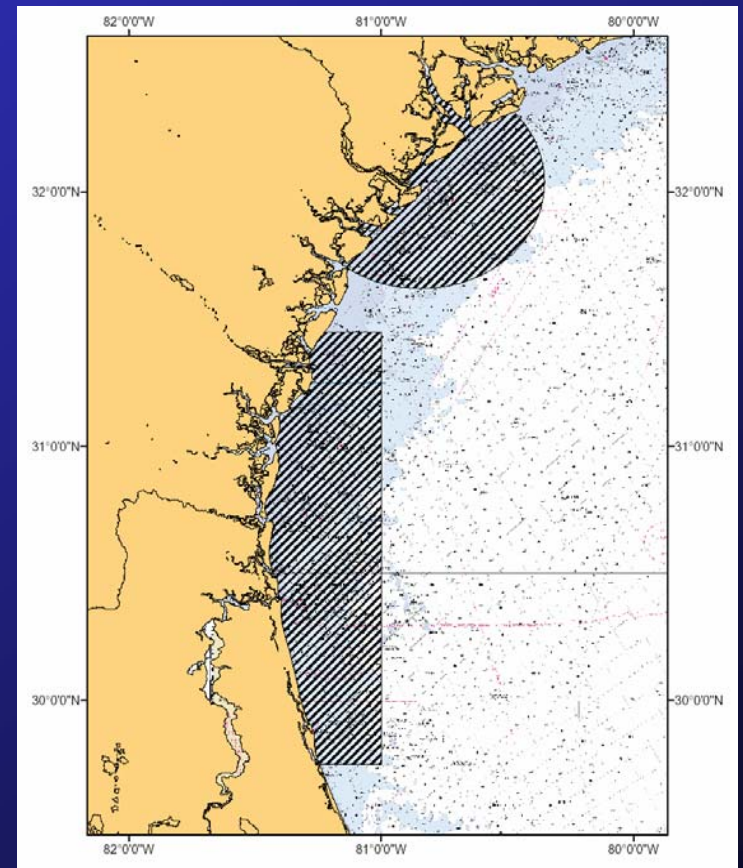
Dynamic Management

- Along the Atlantic seaboard within the EEZ
- Certain concentrations of right whales
- Outside Time or Area of SMA
- Precautionary area established for limited period of time
- Vessels must divert or restrict speed

Distance, duration and speed subject to further analysis

Savannah Seasonal Management

- November – April
- Speed Restriction (10-14 knots)
- DMA



Proposed Operational Measures for MidAtlantic

- ~10-14 knot speed restriction in ~20-30 nmi radius around Port Entrances
- Vessels \$ 65'

Note: Precise size of area and timing to be determined pending further analysis of sighting data



Seasonality of Proposed Mid-Atlantic Operational Measures

PORT	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Providence/New London (Block Island)								
New York								
Philadelphia/Wilmington (Delaware Bay)								
Baltimore/Norfolk (Chesapeake)								
Morehead City, NC								
Wilmington, NC								
Georgetown								
Charleston								
Savannah								

Note: Precise dates to be determined pending further analysis and modeling

Vessel Operating Concerns

- Measuring impacts (additional time) for vessels complying with proposed vessel operating restrictions

**VESSEL TRAFFIC-MANAGEMENT SCENARIOS
BASED ON RECOMMENDED MEASURES
TO REDUCE SHIP STRIKES OF
NORTHERN RIGHT WHALES**

A report submitted to the NMFS Northeast Implementation Team

Submitted by:

Bruce Russell¹, Amy R. Knowlton², and Jennifer Beaudin Ring³

¹Maritime consultant
²New England Aquarium
³GIS consultant

December 2003

Funding provided by:

International Fund for Animal Welfare
Oak Foundation
JS&A Environmental Services, Inc.

Economic Concerns

- Study: Economic Analysis
- Federal Regulations: Formal Economic Analysis



Economic Aspects of Right Whale Ship Strike Management Measures

Final Project Report to the
National Marine Fisheries Service, NOAA
Order Number 40EMNF100235

Hauke L. Kite-Powell and Porter Hoagland
Marine Policy Center
Woods Hole Oceanographic Institution

April 2002

Our Goals

- **Explain Problem**
- **Explain Approach (Strategy)**
- **Initiate Dialog**
- **Industry Input**

